

16. (Original) A semiconductor device according to claim 12, wherein said gate electrodes comprise a ruthenium oxide film which is in contact with said titanium oxide gate insulator.

17. (Currently Amended) A semiconductor device comprising:  
a semiconductor substrate;  
gate insulators formed on said substrate, and  
gate electrodes formed on said gate insulators,  
wherein said gate insulators are comprised of a material as a main component selected from titanium oxide, zirconium oxide and hafnium oxide in which compression strain is produced so that interatomic distances in the material are decreased to suppress leakage current from flowing through the gate insulators, and said semiconductor device is equipped with MOS transistors.

18. (Currently Amended) A semiconductor device comprising:  
a semiconductor substrate,  
gate insulators formed on said substrate, and  
gate electrodes formed on said gate insulators,  
wherein said gate insulators are comprised of titanium oxide as a main component in which compression strain is produced so that interatomic distances in said titanium oxide are decreased to suppress leakage current from flowing through the gate insulators, and said semiconductor device is equipped with MOS transistors.

19. (Previously Presented) A semiconductor device comprising:

a semiconductor substrate,

gate insulators formed on said substrate, and

gate electrodes formed on said gate insulators,

said gate insulators being comprised of titanium oxide as a main component having a rutile crystal structure, and said semiconductor device being equipped with MOS transistors, wherein the thermal expansion coefficient of the main component material of said gate electrodes is greater than the linear expansion coefficient of said titanium oxide.

20. (Currently Amended) A semiconductor device comprising:

a semiconductor substrate;

gate insulators formed on said substrate, and

gate electrodes formed on said gate insulators,

wherein said gate insulators are comprised of titanium oxide as a main component having a rutile crystal structure in which compression strain is produced so that interatomic distances in said titanium oxide are decreased to suppress leakage current from flowing through the gate insulators while tensile strain is produced in the gate electrode, and said semiconductor device is equipped with MOS transistors.

21. (Previously Presented) A semiconductor device according to claim 17, wherein said insulator includes a film comprised of silicon oxide as a main component and an overlying film comprised of a material as a main component selected from titanium oxide, zirconium oxide and hafnium oxide.

22. (Currently Amended) A semiconductor device comprising:

a semiconductor substrate, and

MOS transistors formed on said substrate and each having a gate insulator and a gate electrode formed on said gate insulator, wherein a first MOS transistor has a gate insulator comprised of a high permittivity material as a main component selected from titanium oxide, zirconium oxide and hafnium oxide to permit high speed operation, and a second MOS transistor has a gate insulator containing silicon oxide as a main component to resist high gate voltages.

23. (Previously Presented) A semiconductor device according to claim 22, wherein the first MOS transistor is a transistor used for logic or memory circuits, and the second MOS transistor is a transistor used for I/O.

24. (Currently Amended) A semiconductor device comprising:

a semiconductor substrate,

gate insulators formed on said substrate, and

gate electrodes formed on said gate insulators,

wherein said gate insulators have a multilayered structure comprised of a material as a main component selected from titanium oxide, zirconium oxide and hafnium oxide and in which compression strain is produced so that interatomic distances in the material are decreased to suppress leakage current from flowing through the gate insulators, and said semiconductor device is equipped with MOS transistors.

25. (New) A semiconductor device including MOS transistors comprising:

a semiconductor substrate;  
gate insulators formed on said substrate,  
gate electrodes formed on said gate insulators,  
wherein said gate insulators are comprised of a material as a main component  
selected from titanium oxide, zirconium oxide and hafnium oxide, and  
means for decreasing interatomic distances in the material to suppress leakage  
current from flowing through the gate insulator.

26. (New) A semiconductor device according to claim 25, wherein said means  
decreases interatomic distances between the titanium, zirconium or hafnium atoms and  
the oxygen atoms in the oxide.

27. (New) A semiconductor device according to claim 25, wherein said means  
decreases said interatomic distances by producing a compression strain in said gate  
insulators.

28. (New) A semiconductor device according to claim 26, wherein said means  
decreases said interatomic distances by producing a compression strain in said gate  
insulators.

29. (New) A semiconductor device according to claim 25, wherein said gate  
insulators are comprised of titanium oxide as the main component having a rutile crystal  
structure.

30. (New) A semiconductor device according to claim 26, wherein said gate insulators are comprised of titanium oxide as the main component having a rutile crystal structure.

31. (New) A semiconductor device according to claim 27, wherein said gate insulators are comprised of titanium oxide as the main component having a rutile crystal structure.

32. (New) A semiconductor device according to claim 28, wherein said gate insulators are comprised of titanium oxide as the main component having a rutile crystal structure.

33. (New) A semiconductor device according to claim 25, further comprising means for producing a tensile stream in said gate electrode.

34. (New) A semiconductor device according to claim 26, further comprising means for producing a tensile stream in said gate electrode.

35. (New) A semiconductor device according to claim 27, further comprising means for producing a tensile stream in said gate electrode.

36. (New) A semiconductor device according to claim 28, further comprising means for producing a tensile stream in said gate electrode.

37. (New) A semiconductor device according to claim 29, further comprising means for producing a tensile stream in said gate electrode.